REMARKS

This is a full and timely response to the non-final Official Action mailed 2 November 2004. Reconsideration of the application in light of the above amendments and the following remarks is respectfully requested.

The present paper makes no changes to the claims of the application. Claims 8-45, 50-52, 55 and 56 were withdrawn under a previous Restriction Requirement. Consequently, claims 1-7, 46-49, 53, 54 and 57-63 are currently pending for the Examiner's consideration.

The outstanding Office Action objected to the title of the specification and requested a title that is "clearly indicative of the invention to which the claims are directed." (Action of 11/2/04, p. 2). Consequently, the title has been carefully reviewed and amended herein. The amended title is thought to be sufficient, and notice to that effect is respectfully requested.

With regard to the prior art, claim 57 was rejected as anticipated under 35 U.S.C. § 102(b) by U.S. Patent No. 4,689,999 to Shkedi ("Shkedi"). For at least the following reasons, this rejection is respectfully traversed.

Claim 57 recites:

> A pressure sensor comprising:
> a first membrane that flexes in response to pressure;
> a reference cavity covered by said first membrane, said reference cavity containing a vacuum; and
> a second membrane adjacent to said first membrane;
> wherein said reference cavity and said second membrane are disposed on opposite sides of said first membrane, said first and second membranes forming a capacitor having a capacitance that varies in accordance with the flexing of said first membrane and said pressure.

In contrast, Shkedi fails to teach or suggest the claimed sensor with a reference cavity and second membrane disposed on *opposite* sides of a first membrane that flexes in response to pressure.

As construed in the recent Office Action, Shkedi teaches a first membrane or "diaphragm" at (14). (Action of 11/2/04, p. 2). The first membrane (14) is illustrated in Fig. 1 of Shkedi and flexes in response to the application of pressure. The Action goes on to state that Shkedi teaches a reference cavity covered by the first membrane (14) and containing a vacuum. The Action gives the reference number (132) as indicating the cavity. However, reference number (132) does not exist in the Shkedi reference. Consequently, Applicant assumes that the Action must be referring to the space immediately below the first diaphragm (14). Finally, the Action reads the claimed "second membrane" on the diaphragms (16 or 18) that are shown in Fig. 1 of Shkedi below the first diaphragm (14) that flexes in response to pressure.

Thus, referring to Fig. 1, Shkedi teaches a first diaphragm (14) that flexes in response to applied pressure and below which are, first, an evacuated cavity and, then, a second membrane (16). Clearly, the evacuate cavity and the second membrane (16) are on the *same* side of the first diaphragm (14). Consequently, Shkedi fails to teach or suggest that the evacuated cavity and second membrane are on *opposite* sides of the first membrane as claimed. Rather, Shkedi teaches away from this aspect of claim 57.

"A claim is anticipated [under 35 U.S.C. § 102] only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 2 U.S.P.Q.2d 1051, 1053 (Fed. Cir. 1987) (emphasis added). See M.P.E.P. § 2131. Therefore, for at least this reason, the rejection of claims 57-63 based on Shkedi should be reconsidered and withdrawn.

The remaining claims, claims 1-7, 46-49, 53, 54 and 57-63 were rejected as being unpatentable under 35 U.S.C. § 103(a) over the combined teachings of Shkedi and U.S. Patent No. 5,381,299 to Provenzano et al. ("Provenzano"). For at least the following reasons, this rejection is respectfully traversed.

According to the recent Office Action, Shkedi teaches all the features of these rejected claims, with the exception of a curved membrane, as recited in claims 7, 49, 53 and 63. Consequently, the Action cites Provenzano on this point as teaching a curved membrane which could, according to the Action, be incorporated into the sensor taught by Shkedi. (Action of 11/2/04, p. 4). As will be demonstrated below this is incorrect and misreading of the teachings of Provenzano.

Turning to claim 1, claim 1 recites:

> A pressure sensor comprising:
> a first membrane that flexes in response to pressure;
> a reference cavity covered by said first membrane, said reference cavity containing a vacuum; and
> a second membrane adjacent to said first membrane;
> wherein said second membrane is not in contact with said vacuum; and
> wherein said first and second membranes form a capacitor having a capacitance that varies in accordance with the flexing of said first membrane and said pressure.

(emphasis added).

Similarly, claim 46 recites:

> A pressure sensor comprising:
> a first means for flexing in response to pressure;
> a reference cavity covered by said first means, said reference cavity containing a vacuum;
> a second means for forming a capacitor with said first means, said capacitor having a capacitance that varies in accordance with the flexing of said first means and said pressure; and
> means for measuring said capacitance;
> wherein said second means is adjacent to said first means and not exposed to said vacuum within said reference cavity.

(emphasis added).

In contrast, the combination of Shkedi and Provenzano fails to teach or suggest a second membrane or means that is not in contact with or exposed to a vacuum.

As shown in Fig. 1 of Shkedi, all the space between the various diaphragms (12, 16, 18) is interconnected (*See* passageways 30 and 36). Consequently, when sensor is used and the space is evacuated, as described in col. 5, lines 49-50, each of the diaphragms is in contact with the vacuum.

Provenzano is cited merely for the teachings of a curved membrane, which is irrelevant to the recitations of claims 1 and 46. Provenzano also does not teach or suggest a second membrane that is not in contact with a vacuum as claimed.

Consequently, the cited prior art fails to teach or suggest all the features of claims 1 and 46. In fact, the recent Office Action did not even discuss the salient features of claims 1 and 46 and has failed to make out a *prima facie* case of unpatentability with respect to these claims.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). Because the combination of Shkedi and Provenzano fails to teach or suggest the claimed second membrane that is not in contact with a vacuum, the rejection of claims 1-7 and 46-49 should be reconsidered and withdrawn.

Claim 53 recites:

> A pressure sensor comprising:
> a first membrane that flexes in response to pressure;
> a reference cavity covered by said first membrane, said reference cavity containing a vacuum; and

a second membrane adjacent to said first membrane, said first and second membranes forming a capacitor having a capacitance that varies in accordance with the flexing of said first membrane and said pressure;

wherein one of said membranes is formed with a curvature with respect to the other said membrane.

(emphasis added).

In contrast, the combination of Shkedi and Provenzano fails to teach or suggest a membrane formed with a curvature with respect to another membrane. As noted above, the present Office Action cites Provenzano as teaching a membrane formed with a curvature. This is actually a misreading of Provenzano.

Fig. 3 of Provenzano, which also appears on the first page of Provenzano, *appears* to show a curved membrane (104). However, the membrane (104) is *not* formed with a curvature as claimed, but is merely show in Fig. 3 as being deflected under the application of pressure. (Provenzano, col. 3, lines 51-53). Fig. 2 shows the same membrane (104) when pressure is not being applied. In Fig. 2, the membrane (104) has no curvature. Consequently, the combination of Shkedi and Provenzano fails to teach or suggest a membrane *formed with a curvature* with respect to another membrane, as claimed.

"To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 490 F.2d 981, 180 USPQ 580 (CCPA 1974)." M.P.E.P. § 2143.03. Accord. M.P.E.P. § 706.02(j). For at least this reason, the rejection of claims 53 and 54 should be reconsidered and withdrawn

Claim 57 was also included in the rejection based on a combination of Shkedi and Provenzano. Shkedi fails to teach or suggest the features of claim 57 as demonstrated above. Combining Shkedi with Provenzano does not remedy the deficiencies of the Shkedi reference with respect to claim 57, nor has the recent Office Action explained or addressed how

Provenzano might do so. Consequently, the rejection of claims 57-63 based on the combination of Shkedi and Provenzano should likewise be reconsidered and withdrawn.

For the foregoing reasons, the present application is thought to be clearly in condition for allowance. Accordingly, favorable reconsideration of the application in light of these remarks is courteously solicited. If the Examiner has any comments or suggestions which could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the number listed below.

Respectfully submitted,

DATE: 27 January 2005

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DATE OF DEPOSIT: **January 27, 2005**

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